

REMARKS

This Amendment cancels claims 30, adds new claim 33, and amends claims 25 and 32. The features of the adhesion promoter (d) of claims 25 and 32 are taken from claim 30, while their 10 mm capillary rise feature is disclosed at page 5, line 1 of the application, the alkenyl residue feature of their polyorganosiloxane resin (g) is disclosed at page 8, lines 35-38, and their 50-200°C crosslinking temperature range is disclosed at page 14, lines 30-36. The change to the tensile strength units (N.mm<sup>2</sup>) in claims 25 and 32 merely corrects a typographical error which would be obvious to one of ordinary skill in the art. New claim 33 is supported by page 15, line 34 to page 16, line 5. Claims 25-29 and 31-33 are pending.

A Request for Continued Examination is attached. Entry and favorable consideration of this Amendment is requested.

The 35 U.S.C. § 112, second paragraph, rejection of canceled claim 30 is traversed to the extent the rejection is applied against any of pending claims 25-29 and 31-33. One of ordinary skill in the art would understand "valency bond" to mean a covalent bond between the silicon atom and either A, or the vinylic carbon if A is not present, particularly in view of page 10, lines 34-35,

which identify vinyltrimethoxysilane as a preferred adhesion promoter coming within the structure of formula (d.1). Reconsideration and withdrawal of the indefiniteness rejection of claim 30 are respectfully requested.

The 35 U.S.C. § 102(b) rejection of claims 25-29, 31 and 32 over U.S. Patent No. 6,387,520 to Fujiki et al. is traversed. The claimed composite is prepared by impregnating a substrate with a silicone composition consisting essentially of a specified formulation which must contain an adhesion promoter and which does not contain a filler. The resulting composite has a capillary rise of less than 10 mm, as measured in a T test. In contrast, Fujiki et al. discloses a silicone rubber coating composition which contains a wet silica filler (Col. 2, lines 13-16) and which does not contain the adhesion promoter required by the claimed composite. Reconsideration and withdrawal of the anticipation rejection of claims 25-29, 31 and 32 over Fujiki et al. are respectfully requested.

The 35 U.S.C. § 103(a) rejection of claim 30 over Fujiki et al., further in view of U.S. Patent No. 5,658,674 to Lorenzetti et al., is traversed to the extent this rejection may be applied against any of pending claims 25-29 and 31-33. As discussed above,

the claimed composite is prepared by impregnating a substrate with a silicone composition consisting essentially of a specified formulation which must contain an adhesion promoter and which does not contain a filler. Additionally, the composition must have a dynamic viscosity of between 1000 and 7000 mPa.s at 25°C before crosslinking. The resulting composite has a capillary rise of less than 10 mm, as measured in a T test.

The cited combination of references fails to raise a prima facie case of obviousness against the claimed composite because their combined disclosure would not lead one of ordinary skill in the art to the claimed composite. Fujiki et al. fails to disclose or suggest a silicone composition which does not contain a filler. Instead, Fujiki et al. teaches the inclusion of wet silica filler to a silicone composition is important to adjust the composition's viscosity so that it may form a solventless liquid system (Col. 4, lines 35-48).

Fujiki et al. also teaches its wet silica filler can act as a flame retardant if the filler's sodium ion content is reduced (Col. 4, line 63 to Col. 5, line 39). One of ordinary skill in the art is given no disclosure or suggestion from Fujiki et al. to omit the wet silica filler from its silicone composition.

Lorenzetti et al. is cited to show the adhesion promoter required in the silicone composition used to prepare the claimed composite. However, Lorenzetti et al. also teaches its cold vulcanizable silicone elastomer coating composition may contain an optional filler material (Col. 2, line 50), which may be a siliceous filler (Col. 7, lines 6-12). The paste of the two-component composition in Lorenzetti et al.'s example contains silica (See Table 1 on Col. 10). Thus, Lorenzetti et al. does not provide any motivation or suggestion to omit silica filler from the Fujiki et al. silicone composition.

Moreover, there are additional differences between the Lorenzetti et al. composition and the silicone composition required to prepare the claimed composite. More specifically, the claimed composition must have a dynamic viscosity of between 1,000 and 7,000 mPa.s at 25°C before crosslinking. In contrast, the compositions of Lorenzetti et al. have a dynamic viscosity ranging from 10,000 and 50,000 mPa.s (col. 8, lines 13-15). Also, the claimed composite must be prepared from a silicone composition which must consist essentially of enumerated components. Neither Fujiki et al. or Lorenzetti et al. disclose or suggest the required composition. In short, one of ordinary skill in the art would not

be led to the claimed composite from the combined disclosures of Fujiki et al. and Lorenzetti et al.

A feature of the claimed composite is that it must have a capillary rise, measured according to a T test, of less than 10 mm. The applicants impregnated fibrous glass substrates with the composition of the present invention and also the Fujiki et al. and Lorenzetti et al. composition. The resulting composites were evaluated for their capillary rise according to the T test. As set forth in the attached Appendix, a composite prepared according to the present invention exhibited a capillary rise of 0 mm after one hour of contact with a tank of colored ink. In contrast, composites prepared according to Examples 1 and 2 of Fujiki et al. had an average capillary rise of 25 mm and 11 mm, respectively, after an hour of contact with the colored ink. A composite prepared according to the Lorenzetti et al. example exhibited an average capillary rise of 95 mm after one hour.

The claimed composite had a capillary rise of 0 mm after 24 hours of contact with the colored ink, while the Lorenzetti et al. composites had an average capillary rise of 145 mm. Composites prepared according to Example 2 of Fujiki et al. had an average capillary rise of 11 mm, while those prepared according to Example

U.S. Patent Appln. S.N. 10/522,578  
AMENDMENT AFTER FINAL REJECTION

PATENT

1 of Fujiki et al. had an average capillary rise of 19 mm (4 composites at 40 mm and 9 composites at 10 mm).

Reconsideration and withdrawal of the obviousness rejection of claim 30 over Fujiki et al. and Lorenzetti et al., to the extent it may be applied against any of claims 25-29 and 31-33, are earnestly requested.

The 35 U.S.C. § 103(a) rejection of claims 25-32 over Lorenzetti et al. in view of Fujiki et al. is traversed for the same reasons set forth above. Reconsideration and withdrawal of the obviousness rejection of claims 25-32 are earnestly requested.

The fees for the extension of time and RCE are being paid electronically today. Please charge any additional required fees or credit any overpayment to Deposit Account No. 50-1258.

Respectfully submitted,

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Petition for Extension of Time  
Request for Continued Examination  
Appendix

The applicants performed a test of capillary rise resistance, named the T test (or Wicking test) in the present specification, in order to compare the composite obtained by impregnating a fibrous glass substrate, on the one hand, with the compositions of Example 1 and 2 of Fujiki et al. and with the Example of Lorenzetti et al. and, on the other hand, with the composition according to the claimed invention, which is equivalent to the composition as described in table I of the specification as filed.

**Preparation:**

The following composites were prepared:

In the following compositions Me = methyl group, Vi = vinyl group

- Composite 1 according to the claimed invention:

PART A		
N°	Compounds	%
(a) POS SiVi + (g) POS SiVi resin	MM(Vi)Q resin (at 25 % in poly diMe-methylVi $\alpha, \omega$ -vinylsiloxane oil of 3500 mPa.s viscosity)	86.95
(f) ECH	Ethynylcyclohexanol	0.05
(d.1) MEMO	Methacryloxypropyltrimethoxysilane	1
(d.2) GLYMO	Glycidoxypropyltrimethoxysilane	1
(b) POS SiH	Poly diMe-dimethylhydrogeno, $\alpha, \omega$ -SiH containing 20 % SiH and of 25 mPa.s viscosity	11

PART B		
N°	Compounds	%
(a) POS SiVi + (g) POS SiVi resin	MM(Vi)Q resin (at 25 % in polydiMe-methylVi $\alpha, \omega$ -vinylsiloxane oil of 3500 mPa.s viscosity)	95.79
(d.3) TBOT	Tetrabutyl orthotitanate	3.99
(c) Pt catalyst	Karstedt's catalyst containing 10 % weight Platinum	0.22

100 parts of PART A are mixed with 10 parts of PART B in a IKA 1L reactor at room temperature.

A 300 g/m<sup>2</sup> woven glass fabric is impregnated with the composition by means of a laboratory calender, under the following conditions:

- diameter of the rolls: 10 cm
- run speed: 1 m.min<sup>-1</sup>
- applied pressure: 22 kg.cm<sup>-1</sup>

The impregnated woven glass fabric is then placed in a fan oven at 150 °C for 1 min.

- Composition **2a** according to Example 1 of Fujiki et al.:

N°	Compounds	weight / %
POS SiVi (A)	Dimethylpolysiloxane blocked with dimethylvinylsiloxy groups at both ends of 3500 mPa.s viscosity	300 g
Mineral filler (C)	Wet silica (Evonik/Degussa ref. Sipernat D160 (specific surface area 160 m <sup>2</sup> /g)	57 g
POS SiOH	Dimethylhydroxysilyl end-blocked dimethylpolysiloxane oil of 750 mPa.s viscosity	6 g
POS SiH (B)	Poly di-methyl di-methyl,hydrogeno, $\alpha,\omega$ -SiH containing 20 % SiH and of 25 mPa.s viscosity	12 g
ECH	ethynylcyclohexanol	0.12 g
GLYMO (D)	Glycydoxypropyltrimethoxsilane	3 g
Pt catalyst (E)	Karstedt's catalyst containing 10 % weight Platinum	0.017 %

In a IKA 1L reactor, the following compounds are mixed under stirring ( $100 \text{ tr}.\text{min}^{-1}$ ):

- 225 g of POS SiVi,
- 19 g of mineral filler, and
- 6 g of POS SiOH.

After 30 min, the remaining weight of POS SiVi and of mineral filler is added. The reactor is then placed under pressure (205mb) and heated at  $150^\circ\text{C}$  for 30 min. The mixture is then cooled to  $25^\circ\text{C}$  and placed at atmospheric pressure.

The following compounds are then added to the mixture:

- 12 g of POS SiH,
- 0.12 g of ECH,
- 3 g of GLYMO, and
- 0.017 % of Pt catalyst.

A  $300 \text{ g/m}^2$  woven glass fabric is impregnated with the above composition by means of a laboratory calender, under the following conditions:

- diameter of the rolls: 10 cm
- run speed:  $1 \text{ m}.\text{min}^{-1}$
- applied pressure:  $22/35 \text{ kg}.\text{cm}^{-1}$

The impregnated woven glass fabric is then placed in a fan oven at  $150^\circ\text{C}$  for 1 min.

- Composition **2b** according to Example 2 of Fujiki et al.:

N°	Compounds	weight / %
POS SiVi (A)	Dimethylpolysiloxane blocked with dimethylvinylsiloxy groups at both ends of 3500 mPa.s viscosity	300 g
Mineral filler (C)	Wet silica (Evonik/Degussa ref. Sipernat D160 (specific surface area 160 m <sup>2</sup> /g)	57 g
POS SiVi resin	MM(Vi)Q resin (at 25 % in polydiMeMeVi $\alpha,\omega$ -vinylsiloxane oil of 3500 mPa.s viscosity)	37.5%
POS SiOH	Dimethylhydroxysilyl end-blocked dimethylpolysiloxane oil of 750 mPa.s viscosity	6 g
POS SiH (B)	Poly di-methyl di-methyl,hydrogeno, $\alpha,\omega$ -SiH containing 20 % SiH and of 25 mPa.s viscosity	12 g
ECH (reaction controlling agent)	ethynylcyclohexanol	0.12 g
GLYMO (D)	Glycydoxypropyltrimethoxysilane	3 g
Pt catalyst (E)	Karstedt's catalyst containing 10 % weight Platinum	0.017 %

In a IKA 1L reactor, the following compounds are mixed under stirring (100 tr.min<sup>-1</sup>):

- 225 g of POS SiVi,
- 19 g of mineral filler, and
- 6 g of POS SiOH.

After 30 min, the remaining weight of POS SiVi and of mineral filler is added. The reactor is then placed under pressure (205mb) and heated at 150 °C for 30 min. The mixture is then cooled to 25°C and placed at atmospheric pressure.

The following compounds are then added to the mixture:

- 12 g of POS SiH,
- 0.12 g of ECH,
- 3 g of GLYMO,
- 37.5% of POS SiVi resin, and
- 0.017 % of Pt catalyst.

The resulting composition has a viscosity of 4800 cP at 25°C.

A 300 g/m<sup>2</sup> woven glass fabric is impregnated with the above composition by means of a laboratory calender, under the following conditions:

- diameter of the rolls: 10 cm
- run speed: 1 m.min<sup>-1</sup>
- applied pressure: 45 kg.cm<sup>-1</sup>

The impregnated woven glass fabric is then placed in a fan oven at 150 °C for 1 min.

- Composite 3 according to Example 1 of Lorenzetti et al.:

Primary Paste		
N°	Compounds	Parts by weight
POS SiVi resin	MM(Vi)D(Vi)DQ resin	350
quartz	Ground quartz SIFRACO C 600	290
High viscosity oil	polydiMeMeVi α,ω-vinylsiloxane oil of 100,000 mPa.s viscosity	232
Low viscosity oil	polydiMeMeVi α,ω-vinylsiloxane oil of 10,000 mPa.s viscosity	118
Silica	AE 60 Silica	10

Part A		
N°	Compounds	Parts by weight
Primary Paste	As above defined	100
POS SiH	Poly diMe-diMeH, $\alpha,\omega$ -SiH containing 0.2 mol% SiH and of 300 mPa.s viscosity	4.25
ECH	Ethyneylcyclohexanol	0.03
MEMO	Methacryloxypropyltrimethoxysilane	1
GLYMO	Glycidoxypyltrimethoxysilane	1

PART B		
N°	Compounds	Parts by weight
Primary Paste	As above defined	9.40
High viscosity oil	polydiMeMeVi $\alpha,\omega$ -vinylsiloxane oil of 100,000 mPa.s viscosity	0.8
TBOT	Tetrabutyl orthotitanate	4
Pt catalyst	Karstedt's catalyst containing 10 % weight Platinum	20ppm Pt

100 parts of PART A are mixed with 10 parts of PART B in a IKA 1L reactor at room temperature. The resulting viscosity of the composition is 37,200 cP at 25°C.

A 300 g/m<sup>2</sup> woven glass fabric is impregnated with the composition by means of a laboratory calender, under the following conditions:

- diameter of the rolls: 10 cm
- run speed: 1 m.min<sup>-1</sup>
- applied pressure: 45 kg.cm<sup>-1</sup>

The impregnated woven glass fabric is then placed in a fan oven at 180 °C for 3 min.

**Analytical procedure:**

The capillary rise is given by the height to which a liquid with which the end of a composite strip is brought into contact, according to a T test, rises.

The T test (also called Wicking test) is carried out as follows:

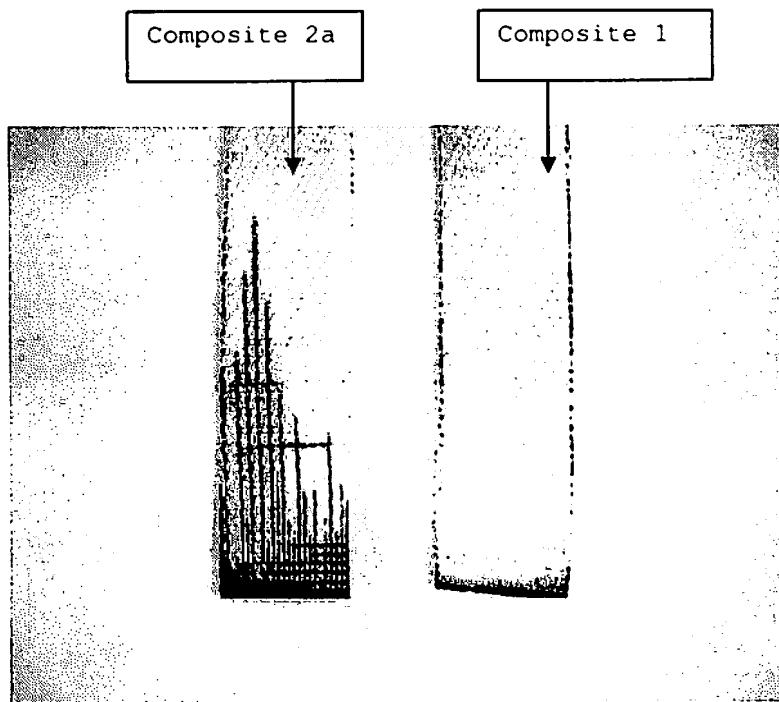
- A strip measuring 2 × 20 cm of the fiber/silicone composite is cut;
- a tank containing a colored ink (for example fountain pen ink) is prepared;
- the cut strip of fibrous material is suspended above the ink bath so as to make the strip flush with the ink;
- the 0 level is defined as the meniscus line of the ink on the strip;
- the composite strip is left in place until the rising front of ink is in equilibrium;
- the height (H) in millimeters, corresponding to the difference between the 0 level and the maximum rise level of the ink along the strip, is measured.

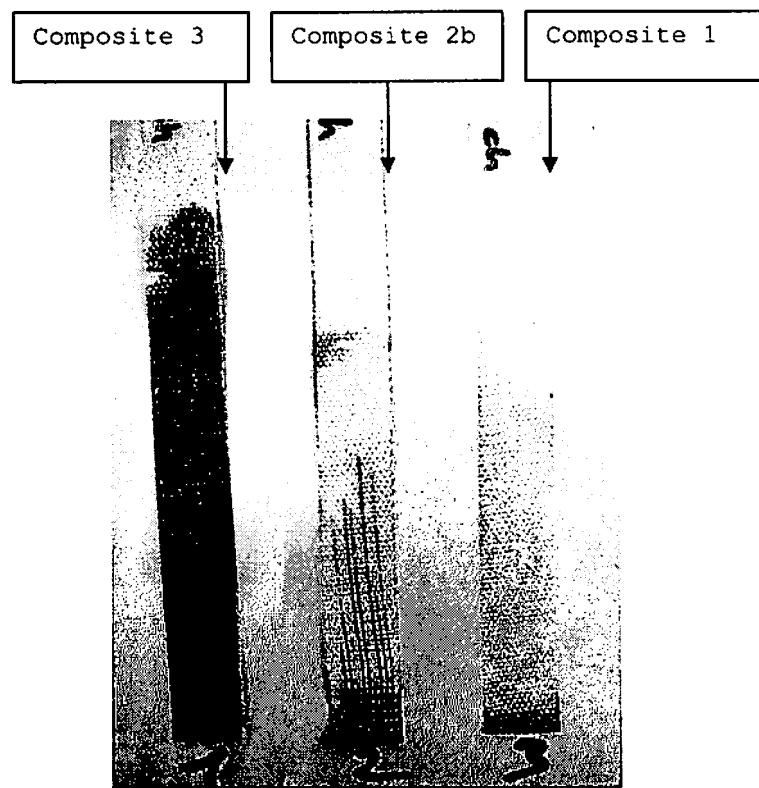
The capillary rise is defined by the distance H. The resistance to capillary rise is inversely proportional to H.

**Results:**

	Wicking test (mm)	
	t=1h	t=24h
Composite 1	0 mm	0 mm
Composite 2a	25 mm (average) and 1 fiber at 42 mm	4 fibers at 40 mm and 9 fibers at 10 mm
Composite 2b	11 mm (average) and 4 fibers at 75 mm	11 mm (average) and 6 fibers at 75 mm
Composite 3	95 mm (average)	145 mm (average)

See also the below picture on which the left strip corresponds to Composite 2a according to Fujiki et al. and the right strip corresponds to Composite 1 according to the present invention:





**Conclusion:**

It is clear from the above tests that the composites of Fujiki et al. and of Lorenzetti et al. have a capillary rises greater than 10 mm, measured in the above T test.